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Summary

Labour market dynamics according the individual working hour tension (preferred working hours minus actual working hours) of active people with focus on the self-employed, as professions and entrepreneurs, and employees are investigated in our study. The individual longitudinal analysis based on panel data allows us to follow the individual process of working time preferences and actual outcomes in its individual convergence/divergence balancing process in the course of time. Our microanalytic and paneleconometric results (with pooled, one and two factor fixed and random effects models) quantify the working hour tension developments and its determinants in a decade from the mid 80s to the mid 90s. Microdata base is the German Socio-Economic Panel with ten waves from 1985 to 1994. Finally, we discuss impacts of our results for labour market strategies and a targeted economic and social policy.

Keywords: Labour market dynamics, working hour tension, desired and actual working hours, paneleconometric analyses, professions, entrepreneurs and employees

Zusammenfassung

Die Arbeitsmarktdynamik hinsichtlich der individuellen Arbeitszeit-(An)Spannung (Arbeitszeitwunsch minus Arbeitszeitwirklichkeit) der Erwerbstätigen mit Fokus auf die Selbständigen, als Freie Berufe und Unternehmer, sowie die abhängig Beschäftigten ist das Thema unserer Studie. Die individuelle Längsschnittanalyse auf der Basis von Paneldaten erlaubt es uns, die individuelle Entwicklung zwischen gewünschter und tatsächlicher Arbeitszeit in ihrem Konvergenz/Divergenzprozeß im Wandel der Zeit zu verfolgen. Unsere mikroanalytischen und panelökonometrischen Resultate (mit pooled, ein und zwei Faktor fixed und random Effektmodellen) quantifizieren die Entwicklung und ihre Determinanten in der Dekade von Mitte der 80er bis Mitte der 90er Jahre. Mikrodatenbasis ist das Sozio-ökonomische Panel mit zehn Wellen von 1985 bis 1994. Abschließend diskutieren wir Folgerungen unserer Ergebnisse für Arbeitsmarktstrategien und eine zielgerichtete Wirtschafts- und Sozialpolitik.

Schlagwörter: Arbeitsmarktdynamik, Arbeitsmarkt(an)spannung, gewünschte und tatsächliche Arbeitszeit, panelökonometrische Analysen, Freie Berufe, Unternehmer und abhängig Beschäftigte

JEL classification: D1, D3, J21, J22, J23, J44

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1 Introduction: Individual income dynamics of market and non-market work

The ancient wisdom about the world as phrased by Heraklit's ,panta rhei' (,everything is changing') has become an evident actuality concerning economic patterns within the 80s and 90s at the end of our century. In particular, traditional labour market patterns are rapidly changing; an increased labour market flexibility and a growing number of unemployed have shed their light on the entire household ressource situation even in so called modern societies. Thus, it is a demanding question if those changing market conditions could be balanced to a certain extent by further household ressources of unpaid work. Or even more far reaching, have these market developments such an important impact on the individual income distribution without being able to be balanced by further household ressources? In addition, the shadow or unrecorded economy – and household production as an essential part of it - itself naturally is of importance in particular as an indicator of the performance of a society measuring a society's welfare and economic output (Gronau 1986, Statistics Canada 1994, Goldschmidt-Clermont and Pagnossin-Aligisakis 1995, Goldschmidt-Clermont 1993; for Germany: Seel 1988, Merz 1996). In addition, extending market income to some full income is important for international, cross country comparisons and perspectives of differently organized market and non-market human ressource and production possibilities.

Though there is a sound and evident need for microanalyses of individual extended income dynamics of inequality and poverty including unpaid work, empirical analyses of extended income and welfare are rare within the cross section frame, and the more and almost invisible within a dynamic framework, not only in Germany. The rare foreign enhanced cross sectional studies e.g. by Jenkins and O'Leary 1996, Gershuny and Halpin 1993, Bonke 1992 or Bryant and Zick 1985, and Merz 1989 for Germany, underline the situation and urgently ask for an empirically based enhanced income analysis for Germany as a cross section and the more as a longitudinal dynamic analysis.

This paper will contribute to this question of individual income dynamics and asks for the changing patterns of household market and non-market (unpaid work) and its distributional impacts to extended income dynamics within a decade from the mid 80s to the mid 90s in Germany. In the theoretical section we discuss the important

components of our approach: incorporating the household and family structure (within the individual analysis) by the equivalence scale approach as well as valueing unpaid work as an important part of the non-market household ressources. Within the equivalence scales part we search for proper empirically based equivalence scales. Within the valuation part of unpaid work we discuss a variety of measurement approaches of shadow pricing to evaluate the time spent for unpaid work. In this paper we concentrate on market replacement costs with a global and specialized substitute and – as a specific feature - on an individual self-evaluation of household production. A forthcoming paper will deal with the microeconomic based opportunity wage and the reservation wage concept. Our microdata base is the German Socio-Economic Panel with ten waves from 1985 to 1994.

The empirical attempt will be in two steps: in the first step, cross sectional patterns from the mid 80s and the mid 90s shall describe the overall extended income distributional changes where the household structure is covered by a broad spectrum of equivalence scales. There the German overall situation is described including the ‚Neue Länder‘ for 1994 after our reunification 1990/91. Extended income, in particular, will be calculated with regard to several shadow pricing procedures for unpaid work. With those different scenarios and the two cross sectional snapshots the microsimulation approach shall disentangle the overall changing household structure and shadow pricing influences on the extended income distribuitions within a decade.

With the second empirical step, individual dynamics and economic well-being mobility are regarded by a panelanalysis. The panelanalysis will show and quantify the individual dynamics as movements from extended income positions regarding the respective household and working load structure. With regards to socioeconomic impacts we present our results for the following different occupational groups: professions and entrepreneurs as self-employed as well as employees with their different souvereignity in spending their time to paid and unpaid work. In the concluding remarks we express some economic and social policy impacts of the approach in general and our results in particular.

2 Incorporating household/family structures – The equivalence scales approach

2.1 Household and family sociodemographics and equivalence scales

When analyzing individual socioeconomic behaviour it is desirable to take into account a person's family and household situation. Because of possible economies of scale in larger households and different individual needs of adults and children, a simple scale, given by an equal weight to each person (head counting) providing a per capita household income, is not flexible enough to study the distribution of well-being. Therefore, more adequate household type specific weights are important for further income comparisons concerning inequality and the measurement of poverty. One proven important way to take this into account is the well-known equivalence approach.

Equivalence scales deflate household money income, respectively expenditures, according to the household type to 'calculate the relative amounts of money two different types of households require in order to reach the same standard of living' (Muellbauer 1977, 460). Given equal preference or utility levels u for two households

and constant prices **p**, an equivalence scale e of a household with composition **s** relative to that of some reference household with composition $\mathbf{s}_0$ then is defined as

(1) $e = c(u,\mathbf{p},\mathbf{s})/c(u,\mathbf{p},\mathbf{s}_0) = y/y_0, \quad y = y_0 * e$

where c(.) is the cost function of reaching utility level u and y is the money income of the respective household. A family of two, say, requires e-times as much disposable income as a family of one to reach the same level of equivalent income y.

Equivalence scales might be divided into three general categories: expert, subjective and consumption based scales.[1] Expert based equivalence scales are defined by physiological and socio-cultural basic needs stated by some experts. Subjective equivalence scales are based on individual surveys asking on the one hand for an overall, general necessary income of anybody and on the other hand for a respondent's own necessary income. Consumption based equivalence scales rely on revealed preferences measuring actual consumption expenditures of different household types. Single consumption equation methods regard either absolute expenditures with specific adults' and children's goods where the income relation y/y0 is given by identical relative expenditures. Multiple consumption equation methods encompass several goods to capture different economies of scale in different goods. Finally, the complete demand system approach relies on the theory of consumer behaviour. The cost functions are defined by microeconomic theory and its duality incorporating the household allocation problem of full market basket expenditures. Recent attempts additionally regard intra-household allocation of ressources via a household production approach.

2.2   In search for a proper empirical range of equivalence scales

Because of this variety of equivalence approaches there is the question which one – or to be more sensitive: which range - is adequate for our purpose. In a recent joint US and German research project we compared equivalence scales with consistent methods and similar microdata bases as recent income and consumption surveys of both countries.[2] We concentrate there (Merz and Faik 1995, Burkhauser, Smeeding and Merz 1996) on a single equation expenditure method with different Engel approaches as well as on a complete demand system approach (Merz and Faik 1995). The complete demand system approach provides true, constant utility based equivalence scales and is specified by an extended linear expenditure system (ELES). While the Engel methods traditionally focus on food expenditures, the multiple equation expenditure complete

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[1]   In a recent survey on equivalence scales and their uses in inequality and poverty measurement, Coulter, Cowell and Jenkins 1992a divide the topic in 5 categories: econometric, subjective, budget standard, social assistance, and pragmatic equivalence scales. Pollak and Wales 1979 in general discuss welfare comparisons and equivalence scales. For further equivalence scales overviews e.g. see Klein 1990, Bradbury 1992b and Nelson 1992. Coulter, Cowell and Jenkins 1992b discuss equivalence scale relativities and the extent of inequality and poverty.

[2]   National Institute on Aging Program Project No. PO1-AG09743 on 'The Well-Being of the Elderly in a Comparative Context', Project #3 'Equivalence Scales and the Cost of Disability', principal investigator Richard Burkhauser, project leader Tim Smeeding, both Syracuse University. The German copartners are Richard Hauser, University of Frankfurt, and Joachim Merz, University of Lüneburg.

demand system takes into account a full market basket with all its interdependencies and relative prices.

The results of our empirical work yield the following overview of alternative equivalence scale values for Germany: consumption expenditure scales (based on a sample with more than 42.000 households), subjective scales and three expert scales: the implicit German official social assistance, the OECD and an international expert scale (see Table 1).

The inspection of Table 1 shows quite a range of equivalence scale. To cover, at least to some extent, this broad range we shall take the two ‚extreme' scales further into account: the revealed preference consumption based ELES-scale[3] and the implicit German official social assistance expert scale. As shown in Table 1, the German official social assistance (further GOSA) scale is steeper ascending and weight a 6 persons household with 435; this is more than twice the German ELES scale weight with 193. All other scales are lying in between this range so that our further analyses will capture the other scales and its reasonings.

3   Valueing concepts of unpaid work

There is a broad literature concerning the evaluation of unpaid work e.g. Goldschmidt-Clermont 1982, 1993, Fitzgerald, J. und Wicks, J. 1990 or, in particular, Statistics Canada 1994 with its Proceedings of their International Conference on the Measurement and Valuation of Unpaid Work. Rather neglecting here outcome measures we shall concentrate on the so-called input oriented evaluation, i.e. we are looking for appropriate shadow prices which then will value the time spent for unpaid work at home. In particular, we incorporate in our microanalyses: first, different market replacement costs, and second, a self-evaluation by the interviewed persons which is actually regarding input and output oriented measuring. As stated in the introduction, opportunity cost measures, like foregone alternative wages and reservation wages, will be considered in a following paper.

3.1   Replacement cost measures: Generalist and expert costs

Most of the work on valueing time spent in household production has been done by using market alternative cost approaches. The market alternative or replacement cost approach value the time spent for certain home activities by that value which has to be paid for similar services in the market. The third-person-criteria here gives some hints which household production activities are near market and could be substituted by market alternatives.

The market replacement costs may be divided by a generalist (with a global substitute) approach and specific to the kind of work by adequate specialized market substitutes. The replacement cost by a generalist, in particular, takes into account managing components where the cost by experts counts for their specific skills.

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3)   Which is quite similar to the US-ELES-Scale (see Merz, Garner, Smeeding, Faik and Johnson 1994)

Insert Table 1: Alternative Equivalence Scale Values for Germany (tab-1.doc)

It is being discussed controversially whether to better take before-tax income or net earnings for the evaluation of household production by the replacement cost approach. For sure the decision on pro or con (like the choice of the evaluation method) is pending the exact target of investigations. We are here following the line of argumentation of the German Federal Statistical Office, according to which institutional basic conditions of household production do not comply with those of usual paid work[2]. There are neither taxes to be paid in household nor national insurance, nor does a claim exist for paid days of illness, or vacation leave. Therefore, a net hourly wage is being based upon in our study.

3.2   Self-evaluation

In general, methods of self-evaluation are rarely discussed in the literature, probably for reasons of unavailable data. A self-evaluation of household production activities is the individual evaluation of savings induced by household productions which gives information on the subjective value and productivity of unpaid household work. The assignment to an input or output oriented measure is depending on how a questionnaire is asking for the input a person is valueing by him/herself (which then allows an adequate comparison to the above input-oriented measures) or whether the question is about buying the final output.

4   Extended income concept – Personal equivalent household extended net income

Now let us put together the theoretical components for our microanalysis of extended income with consideration of a broad spectrum of equivalence scales. For market work we shall incorporate not only the personal traditional paid work as a self-employed or employee but shall include the overall income situation from the market including non-labour income like personal transfers and possible income parts from let and lease, from savings etc. The rationale is: the enhanced full household income is the more adequate measure of the household overall ressources offered at the market. In that sense we shall use paid overall market work as household income.

The extended income part by unpaid work is a part of the overall household production and shall incorporate evaluated time use for different near market activities still to be defined.

Thus, *market income* then is household net income (monthly) and if personalized, personal equivalent household net income (monthly)

(16) $y_m = y_h / e$

where y_h is household net income and e is the respective equivalence scale.

Unpaid work income consists of all persons r=1,...,k activities, where the time input in activity r is evaluated by a certain evaluation method. As we shall see non-market activities (r) in our empirical analysis are: H= Housework, C = Childcaring, D = Do-it yourself.

Valueing household production (v_j) will consists of the following methods j:

Market replacement costs with a global substitute (GL)

Market replacement costs with specialized substitutes (SL)

Self-evaluation (SE)

Thus, personal unpaid ‚income‘ for person i is

(17) $y_{nij} = \Sigma_{r=H,C,D} \; h_{nri} \; v_j.$

Where h_{nri} = non-market monthly time in activity r of person i, v_j = shadow price due to method j (j=1,2,3).

Extended income: After summing up all personal (i) monthly unpaid income components the entire market and non-market (full) income then will be defined as a personal equivalent household full net income (extended income)

(18) $y_j = (y_h + \Sigma_i \; y_{nj})/e$

with regard to one of the unpaid work evaluation methods j. If there is a household of three persons, say, then we have three personal equivalent household extended net incomes of the same size to consider in the distributional computations.

5   Microdata base: The German Socio-Economic Panel

5.1   General Characteristics

Investigating individual dynamics a panel data base of repeated information of a person's situation over time is necessary. The German Socio-Economic Panel (GSOEP) - founded by the Sonderforschungsbereich 3 (Sfb 3) ‚Microanalytic Foundations of Social Policy‘ of the Universities Frankfurt and Mannheim and now a project within the German Institute for Economic Research (DIW, Berlin) with the field work done by Infratest Burke Sozialforschung, München - is our microdata base. Since 1984 socioeconomic information about more than 12,000 persons over 16 years in 4,500 households is collected per year with some additional monthly information. Moreover, following the reunion of both parts of Germany, since 1990 there have been incorporated further 2,200 East German households with approximately 4,450 persons. Our ten years microanalyses start with the second wave, 1985, because of comparable time budget questionsf starting that year.

The thematic spectrum of the panel comprises objective and subjective indicators regarding questions like for the labour market, living conditions, education, time use and income situation. As a combination of household and persons‘ sample the panel permits analyses of the individual situation within the family/household context. Further information about the GSOEP might be found in Wagner, Schupp und Rendtel 1994.

5.2   Market and non-market work questionnaire: Household income and time use questions

The questions concerning household net income and time use in unpaid work in the Socio-Economic Panel are presented in Table 2. Household income as our enhanced paid work concept is asked as an alltogehter household net income question.

The time use information exists of an activity specific set of questions of a normal day. Thus, there is the possibility for some activity specific individual time use information of a normal day within a time budget frame which then have to be valued as above.

Due to the fact that the time budget question had different activities in 1984 and from 1985 on, we start our analysis from 1985 to regard similar activity patterns. It would be beyond the scope of the GSOEP with its multiple targets to have time use data in form of a diary. Thus, time use measured in hours as regards the different kinds of activities of a *usual* work day and a Saturday are to be indicated. Summing up over all daily hours, because of some simultaneity it has not to be assured that the sum always have to be 24 hours. The pros and cons of stylized vs. diary time use questions are discussed e.g. by Niemi 1993 or Juster and Stafford 1985.

As mentioned before the Third-Person-Criterion define the set of unpaid work activities. Thus, we regard housework and shopping (H), childcare (C) and handcraft/maintenance work in respect of house, flat and car, garden work, briefly "Do-it-yourself (DIY)" (D).

As for all empirical work the final sample with sound and available information for all units of investigation is reduced to the original sample size. The time use data had to be edited further insofar as the individual time spent on a single activity had to remain below 16 hours per day. Thus, it has been taken into account that each person needs time for personal regeneration, even in case of looking after children around the clock. Another problem arose from the changes regarding the formulation of questions in the course of years. In the year 1994 (wave K) time use on sundays has no longer been asked. These missing data have been generated based on wave J (1993) in order to meet the differing course of working days and sundays. To this aim time use data for working days and Sundays have been put into relation for all persons questioned, this quotient being proportionally applied to indications in wave K.

Thus our basic assumption is that habits would not change essentially within the course of one year. Persons who have been asked in 1994 but not in 1993, have been given an average value in the related time use categories. With an additional restriction to a maximum of six persons per households, for 1985 and 1994, the two years under consideration, valuable samples of 9,518 resp. 11,842 cases have been obtained (weighted: $N_{1985} = 43{,}473{,}684$; $N_{1994} = 59{,}244{,}511$).

Insert Table 2: Market and non-market work questions (tab-2.doc)

6   Results I: Valueing unpaid work – Replacement cost measures and self-evaluation 1985 and 1994

Before investigating the distributional impacts of extended income measures over a decade we briefly describe the measures of the replacement costs and the self-evaluation for Germany 1985 and 1994.

6.1   Replacement costs measures 1985 and 1994

The two methods basing on the replacement costs differ in the choice of substitutes. The underlying wage of the first method is those of a general domestic staff. The BAT (Bundesangestelltentarif) is an official tariff and valid all over Germany. The second method to introduce replacement costs is the specialist variant: the different activities housework, childcaring and DIY are evaluated by the wages of specialists.

The standard wage grade for housekeepers in our study is based on the wage agreement for private households and for children's nurses/nursery school teachers according to the Federal Tariff for Employees (BAT)[3]. Here, tariff grades VIII up to Vb are being considered; in order to obtain average values the arithmetic mean has been taken, based on the two bordering tariff grades.

There is no standard tariff agreement existing for the aggregate Do-it-yourself sector as we shall need for our empirical analysis. The Statistical Annual Report, however, publishes wages for various handcraft professions. In order to cover wages resulting from maintenance and handcraft work in the household, an average was formed on the basis of earnings of master painters, varnishers, metalworkers, motor mechanics, plumbers, electricians, gas-fitters, heating engineers, carpenters and agricultural workers.

The above steps are overall generating before-tax wages. In order to achieve the desired net wage, an estimation of legal social insurance and taxes had to be made. This was done by means of data from the Socio-Economic Panel, in referring to the difference between net and before-tax wages in respect of the relevant wage grades.

Table 3 summarizes all evaluation methods in valueing time spent in household production we use in our investigation.

6.2   Self-evaluation results 1985 and 1994

One of the innovations within the Socio-Economic Panel is the question about self-evaluation of unpaid work. Unfortunately, there are no self-evaluations at disposal for *all* activities in our data base. However, two main questions of the German Socio-Economic Panel may be referred to, from 1987 (wave C) dating back to 1986 as regarding the Do-it-yourself sector:

Question No. 7: What is your estimate: How much money do you guess you would have had to spend on these products, if you had bought these or ordered them?

Table 3:   Methods for valueing household production

1.   Market replacement costs with a global substitute (GL):

Time use	Substitute
H+C+D	housekeepers net wage (wage agreement)

2.   Market replacement costs with specialized substitutes (SP):

Time use	Substitute
H	housekeepers net wage (wage agreement)
C	nursery-school teachers net wage (BAT)
D	manual workers net wage (Statistical Office)

3.   Net opportunity costs (NOC):

Time use	Substitute
H+C+D	individual reservation wage
	(individual opportunity wage)

4.   Self evaluation (SE)

Time use	Substitute
H	housekeepers net wage (wage agreement)
C	nursery-school teachers net wage (BAT)
D	Individual self evaluation;
	Source: GSOEP 1986

H: Housework,   C: Childcaring,   D: Do-it-yourself

Question No. 8: Did you spend money on material or else when manufacturing or producing these? If so, please estimate the total cost incurred during the last year. Please do not include costs for the acquisition of tools and machines.

In order to achieve a net value, expenditures for handcraft work has been deducted from the estimate savings. Calculation of the hourly wage in 1985 was effected based on individual DIY-time use in Wave B, i.e. each person being given his/her own wage opposite to the usual market evaluation method. Since there has not been a new self-evaluation for 1994, individual hourly wages of 1985 have been inflated by the index of handcraft capacity.

The results of all the replacement cost evaluations as mean values are summarized in Table 4. From the above discussion it is obvious that the observed wage measure as well as the DIY-self-evaluation are individually different whereas the replacement costs are overall mean wages. As it could be seen in Table 4 the lowest wage measure is the the individual DIY-self-evaluation. Such a relatively low valuation of own input is remarkable, the more since the self-evaluation question is output oriented and therefore theoretically should incorporate all inputs and the production value itself.

Table 4:   Valueing unpaid work: Mean hourly wages as components of various evaluation methods

		1985	1994
Measure		DM	DM
Observed wage	female	8,51	12,17
	male	12,02	16,54
Replacement costs:			
- Housekeepers net wage		6,05	10,23
- Nursery-school teachers net wage		9,28	13,20
- Manual workers net wage		9,16	13,14
Individual DIY – self evaluation		3,52	4,92

Source: Bundesangestelltentarif (BAT); German Statistical Office; German Socio-Economic Panel (GSOEP), weighted cross-sectional data (wave B and wave K); own computations.

This may be considered an evident sign of high productivity rates in households being definitely overestimated. To substantiate this assumption it would be useful to dispose of an evaluation (into the future) of classical male and female household activities, shopping and raising up children. Due to a lack of such information these activities had to be included into the method of self-evaluation at an expert wage level.

7 Results II: Extended income dynamics - Cross sectional distributional evidence after a decade (1985-1994)

This section concentrates on two cross-sectional snapshots: the extended income situation in the mid of the 80s (1985), and ten years later, in the mid of the 90s (1994). They describe the distributional situation in overall Germany. Note that 1994 includes the ‚Neue Länder'.

7.1 Unpaid work – Time use and income results 1985 and 1994

Let us start with the presentation of our res

ults according to the time use pattern to be valued by the different methods.

The monthly time use of those who participate out of Table 5 shows the expected divergence between men and women. While women spent in 1985 in the average 165 hours with unpaid work activities, men only invested 87 hours. The overall average unpaid work time use increased in the following decade by 5,9%. As it is shown in some other studies, too, this overall increase is mainly due to the increase of men's time spent in unpaid work by 13,6% (ca. 12 h/monts) compared to a women's increase by 3,3% (ca. 5,5 h/months). Evidently, however, is the almost double time burden in both years for women.

When valueing the individual time use pattern in unpaid work as averaged in the last Table we yield the personal monthly unpaid work income results out of Table 6.

According to the larger amount time women spent in unpaid working activities, their monthly value of household production is higher than those for men. This holds both for 1985 and 1994. Is there any difference accoring the valuation method? Within the replacement cost approaches unpaid work income is highest – for men and women – when valued by a specialist wage. The ordering, however, is in both years gender dependent when compared self-evaluation and a generalist's housekeeper evaluation: lowest men unpaid income is given by self-evaluation, lowest women unpaid income is given by a generalist's approach. Due to the mixed DIY-valuation between specialist and self-evaluation these differences are not distinct.

Whereas the replacement cost valuations with respect to the wages are individual independent (but dependent with respect to time use individually spent for unpaid work), the self-evaluation measure is individually different. Further information for single activities (Housework (H), Child caring (C) and Do-it-yourself (D)) is given in Table 6 including a percentage deviation of the different measurement impacts compared to the generalist approach.

Table 5:   Valueing household production: Participation and time use in non-market activities by gender 1985 and 1994

	1985			1994		
	All	Men	Women	All	Men	Women
Participation[1]						
Housework[2]	82,5	66,6	96,7	90,0	81,4	98,0
Childcaring	22,1	19,4	24,5	33,3	31,3	35,1
Do-it-yourself	62,1	75,9	49,8	59,5	73,2	46,9
Σ HCD[3]	94,4	91,1	97,3	96,0	93,7	98,0
Monthly time use of participants						
Housework[2]	91,5	48,8	117,8	91,3	55,3	118,7
Childcaring	82,6	53,6	103,2	78,7	52,2	100,3
Do-it-yourself	46,3	48,2	43,6	39,4	43,2	34,0
Σ HCD[5]	129,7	87,2	165,4	137,4	99,1	170,9

[1]   Regarding positive time use values for a normal work – or sunday (in % of N).

[2]   Housework including shopping and services is ascertained in one question op to 1990 (wave 7)

[3]   Individual average participation of either housework (H), childcaring © or do-it-yourself (D).

[4]   Average hours of participations; including specific information of work – and sundays. An average month of 30,42 days (26,08 weekdays, 4,34 sundays) is assumed. To receive an approximation for not available time use data on sundays 1994 (wave 11), we used the individual sunday time use information of 1993 (wave 10) and a mean time use for those people who are panelmembers in 1994 but not in 1993.

[5]   Individual average sum of time use in H, C and D.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data;
n_{1985} = 9.518, N_{1985} = 43.473.684, n_{1994} = 11.842, N_{1994} = 59 244 511.

Insert Table 6: Personal monthly unpaid work income (tab-6.doc)

7.2 Changing distributions of extended incomes: Inequality and poverty 1985 and 1994

Now we are able to investigate distributional impacts of household income and extended income according different unpaid work valuation methods and different equivalent scales for the entire extended income concept.

Graphical inspection of changing distributional patterns

First let us have a look to the graphical situation to get an illustration of what is happening. The distribution of individual equalized household income in the broader definition of paid respective market income compared to the personal equalized extended income where unpaid work is measured by the generalist and specialist wages for 1985 and 1994 based on the German Official Social Assistance equivalence scale (GOSA–scale) is presented in Figure 1a, and based on the other extreme Extended Linear Expenditure complete demand system equivalence scale (ELES–scale) in Figure 1b.

We use an Epanechnikov-Kernel (non-parametric) estimation of the density with an optimal width of the density window calculated with the STATA program package. To normalize inflationary influences all graphs are a multiple of the respected mean market income value.

GOSA-scale: In 1985 the well known negatively skewed household income distribution naturally is centered more to the right with no big differences according the two replacement cost measures. Extended income density is flatter and has its peak in between 1,5 and 2 times the mean.

In 1994 the picture is quite different: extended income is flatter compared to 1985 with its peaks around almost 2 times the 1994 market income mean.

ELES-scale: When compared to the GOSA figures all distributions are flatter. The 1994 extended income picture seems like a normal distribution, a tendency, which can be seen by all extended income densities.

To summarize the first glance with the two snapshots: the distributional pattern concerning equivalent household income, and the more, concerning the extended income situation changed in particular where ten years later the extended income density looks almost like a normal density distribution; the extended income distribution is flatter than 1985 and has its peak on higher income. Note, that with the two cross sections overall Germany is regarded where 1994 the ‚Neue Länder' are incorporated and might be of special influence. Thus, the question about the individual changing pattern is left to the following longitudinal results.

Numeric inspection of changing distributional patterns

A more indepth inspection of the distributional developments are given in the Appendix (Tables 7a-f), where gender scale and valuation method specific many further inequality poverty measures are presented. We concentrate on the very main results as in Table 7 which are supported by the further refinements in the Appendix.

Insert Figs. 1a and: Kernel estimates, GOSA, ELES-scale (iig-1.doc)

Insert Figs. and 1b: Kernel estimates, GOSA, ELES-scale (iig-1.doc)

Insert Table 7: Economic well-being in inequality and poverty (ictab-7.doc)

The economic well-being in inequality and poverty for household and extended income 1985 and 1994 for both extreme scales (GOSA and ELES) in Table 7 is measured by the Gini-coefficient and the poverty rate at 50% of mean respective equivalent income. In addition some aggregated development indices describe the changing patterns.

Overall picture: In both years, 1985 and 1994, household income inequality and poverty is remarkably reduced when unpaid work is taken into account. The Gini-coefficient is reduced by ca. 30% with the GOSA-scale and more than 20% with the ELES-scale. Extended income considerations reduces the poverty rate even stronger by ca. 65% (GOSA-scale) and by ca. 50% (ELES-scale). This gap is reduced in 1994 but sill remarkable. The replacement methods of evaluation do not show a significant different pattern.

Equivalence scale influences: Thus, the German official social assistance (GOSA) scale strengths this equalizing tendency when compared to the ELES-scale where the poverty situation is more scale dependent than the overall inequality situation. A stronger consideration of economies of scales for larger households with the GOSA-scale shows more equalizing effects: different scales with different consideration of household sociodemographics do remarkably count in measuring extended income in particular.

Changing patterns 1985 to 1994: *Household income inequality* is raised in Germany from the 80s to the 90s by ca. 4% (GOSA-scale: +4,1%; ELES-scale: +3,8%). In contrast, *extended income inequality* even changed the sign of development and shows a slightly more equalized situation ten years after (GOSA-scale: -1,3% resp. –1,5%; ELES-scale: -1,9% resp. –2,5% according to the generalist resp. specialist replacement cost approach).

Thus, engagements in unpaid work first significantly reduces market inequalities, and second within a decade this engagement with its inequality reducing effects is going to be or has to be more important.

With regard to *poverty dynamics* and the lower part of the income distribution, independent of both extreme equivalence scales, extended income poverty is raised within a decade. The values are between 5,7% and 2,6% (GOSA, GL and SP) respective between 6,8% and 4,1% (ELES, GL and SP) within a decade. Pure household income seems to be more sensitive with regard to equivalence scales: household income poverty is reduced by –8,6% (GOSA-scale) but slightly increaseed by +1,1% (ELES-scale). For more detailled information of household income inequality and poverty developments in Germany see Hauser and Becker 1998 und Berntsen 1992,

To summarize: What is the main story behind these figures? People are only able to improve their inequality situation when taking into account additional household ressources of unpaid work: inequality is reduced with extended income in the mid 80s and the mid 90s and even stronger in the mid 90s. This is in line with results for the UK 1986 (Jenkins and O'Leary 1996, 417 and Gershuny and Halpin 1992, 25). There are equivalence scale effects which, however, don't change the dominant effects. Poverty is remarkably reduced in relative affairs, too. That means, it is not the market it is the non-market area which is able to yield a more equal situation.

Whilst overall extended income inequality within a decade is decreased, poverty, the lower part of the income distribution, is increased. This holds for both extreme scales. Pure household income poverty is scale dependent in particular with even changing the sign of the poverty development.

8   Results II: Individual longitudinal changes in market and non-market inequality and poverty: A panleanalysis with ten GSOEP waves 1985 to 1994

Analyzing longitudinal income and income changes is still at its infancy. Though there are approaches on income mobility or duration analyses being in one of the income classes etc., further approaches with respect to longitudinal profiles have to be deepened. From the substantive point of view changing patterns need a social political discussion about what is desirable or not. Escaping from (income) poverty is probably a desire under many views and ideas about the world, but what is about the rest of the income distribution and its dynamics? Which consequences should politicians draw if they include a concept of extended income? We shall briefly stress this point in our concluding remarks.

To answer these questions an empirical based picture is naturally needed: not only as two snapshots as above, but on the individual longitudinal level to follow the individual development. Since in any aggregated picture individual different developments might be balanced, the panel view allows to follow up adequately the individual development.

8.1   The longitudinal microdata set

Our approach discussed here will investigate income and extended income mobility from certain relative income classes in 1985 to 1994. The panel data will serve the information for the identical persons form the mid 80s (1985) and then ten years later (1994). Thus, when concentrating on theses two years of a person's development we do not investigate in this paper the process in between.

8.2   Individual welfare dynamics in inequality and poverty of market and non-market work 1985 to 1994

What are the income mobility impacts of different paid and unpaid work income concepts with its different valuation methods of unpaid work? Does scaling matter? Our microsimulation analyses with the comparison of the different scenarios will disentangle the single effects.

Income mobility

Table 8 shows the individual longitudinal changes according to welfare positions 1985 to 1994 with respect to the two scales: the German Official Social Assistance-scale in 8a and the ELES-scale in 8b. A welfare position is defined as a multiple of the respective mean income. There are 6 welfare position classes ranging from ≤ 0.50 until ≥ 1.50 times that mean. Each cell a_{ij} counts the number of weighted persons who in 1985 were in the position i and are in the position j ten years later. For a better comparison each row numbers are normalized to 100; the last column allows to recompute the absolute number of persons.

Insert Table 8a: Individual longitudinal changes (ictab-8.doc)

Insert Table 8b: Individual longitudinal changes (ictab-8.doc)

Thus, for instance a_{11}=28.4% of first row in Table 8a has to be interpreted as: 28.4% of all the persons who in 1985 were in the lowest welfare class are still in that class 10 years later when only paid income is regarded under the GOSA-scale. By the way, the choosen 0.50% of the mean income is near the poverty line under investigation.

Because Tables 8a and 8b consist of a large number of income mobility figures for paid income and three extended income versions some condensation is necessary. Based on the detailed figures of Table 8a and 8b the following Table 9 includes mover indices as the percentage of those peaople who have changed their welfare position after ten years compared to all people from the starting welfare position 1985. We divide the results according to paid income and three replacement cost approaches defining a respective extended income under the two extreme scales GOSA and ELES.

First and overall: there is a lot of dynamics from all six welfare positions with much more than 50% of respective people moving from each welfare position.

When regarding *market income* only (the first package in Table 9 and Tables 8a, b) the most movements are by the poor (more than 70% are able to escape from poverty) and for the two classes just above mean personal equivalent household income. Despite the lowest and highest welfare position it will become evident that richer persons show more income mobility. These findings hold both for the GOSA- and ELES-scale.

Now, let us look to *extended income*. Extended income mobility is remarkable great with the most movements from the lowest and highest welfare positions. This holds for all three valuation methods: Generalist and specialist substitutes and self-evaluation. Thus, there is almost no general effect concerning the valuation method within the replacement approaches. These findings hold both for the GOSA- and ELES-scale.

Market income vs. Extended income: Main differences can be disentangled just above poverty and with regard to the richest welfare position. Within a decade all extended income measures (replacement costs) show a tendency to a middle welfare position over the ten years period with diminishing extreme positions.

In a longitudinal view household production as an additional income ressource is in particular able to circumvence poverty and is equalizing with a tendency to the middle of the extended income distribution. This dynamic effect is additional to the discussed tendency to the middle by accounting for additional income ressources.

Equivalence scale effects: Accounting for larger economies of scales within the ELES-scale compared to GOSA results in the following: when considered paid income only welfare mobility of the poorer is diminished and of the richer is growing. When considered the extended income welfare mobility both welfare tails (of the poorer as well as of the richer) are growing.

Thus, different equivalence scales, different ways of accounting for household demographics and economies of scale do matter in measuring inequality and poverty dynamics in particular for the lower and upper part of the income distribution regardless of pure market or extended paid and unpaid income concepts.

**Table 9:   Individual longitudinal changes of the relative welfare positions
1985 to 1994: Mover Index[1])**

	All	
	Official German Social Assistance	ELES
Market income		
<0,50	71,9	66,0
0,50 - <0,75	63,6	59,7
0,75 - <1,00	66,1	63,5
1,00 - <1,25	74,3	73,8
1,25 - <1,50	77,0	81,3
≥1,50	53,8	58,8
Extended income (GL)		
<0,50	70,6	77,5
0,50 - <0,75	73,4	66,7
0,75 - <1,00	61,9	63,0
1,00 - <1,25	64,4	65,2
1,25 - <1,50	74,9	76,6
≥1,50	67,4	74,5
Extended income (SP)		
<0,50	75,6	75,7
0,50 - <0,75	73,7	68,3
0,75 - <1,00	60,7	66,4
1,00 - <1,25	67,3	65,9
1,25 - <1,50	74,8	74,7
≥1,50	68,4	74,4
Extended income (SE)		
<0,50	70,1	75,9
0,50 - <0,75	74,1	68,9
0,75 - <1,00	62,2	61,2
1,00 - <1,25	66,5	65,0
1,25 - <1,50	79,8	75,9
≥1,50	67,9	72,5

1) Mover Index = (People who have changed their welfare position) / $n_{i.}$.

Source: German Socio-Economic Panel (GSOEP), weighted longitudinal section data;
$n_{1985} = n_{1994} = 4.796$; $N_{1985} = N_{1994} = 36.077.424$, own computations

Insert Figures 2a: Welfare mobility 1985-1994: Differences ... (icfig-2.doc)

Insert Figures 2b: Welfare mobility 1985-1994: Differences ... (icfig-2.doc)

Figures 2a and 2b support these findings when measuring the mobility intensity by differences of paid to extended income regardless the replacement cost approach. In particular, the ELES-scale shows different results for the poorer people within the lowest welfare position.

With a tendency to smaller households in Germany in the last decades (and in modern societies in general) and a growing number of single households an ELES-type scale will show more longituidinal impacts on income mobility.

There are many further single results. The interested reader is referred to the above Tables.

9 Further Socioeconomics: Changing patterns for professions, entrepreneurs and employees

In this last section we focus on further socioeconomic breakdowns and influences. The question is: has time use souvereignity connected with paid work any influence to the the patterns? We briefly look to inequality dynamics for self-employed, as professionals (Freie Berufe) and entrepreneurs as well as employees. Thus, we concentrate our following analysis only to paid working people divided according to the occupational status.

To answer the question there is an intrinsic difficulty when analyzing the household sociodemographics by equivalence scales: what is the occupation of the household, not of the person itself? There are (at least) two ways for a solution: take the household head's occupation or take the bred winners' occupation, i.e. of that person with the maximum paid work contribution.

Our result: there is not much difference between these two approaches in Germany for 1985 and 1994. In the overwhelming cases both attributes characterizes the same person.

Table 10 just measures the inequality dynamics by Gini-coefficients for paid market income and the extended income as valued by the generalist approach. Personal equivalent respective income is scaled by the German Official Social Assistance scale (GOSA).

In 1985 as well ten years later there is a clear ordering concerning market income: most inequality is given by employees, followed by entrepreneurs and finally by professions. The picture is different according to extended income: while 1985 this ordering holds too for the extended income, for 1994 we see a reversed picture: inequality is highest within entrepreneurs followed by professions and then employees.

In other words: It is the dependent employment situation, may be despite of all time use souvereignity but dependent on needs not covered by market activities, which could or has to balance the income situation.

Looking to the situation after a decade, paid income inequality is raised in particular with employees (more than 90%) followed by entrepreneurs (40%) and professions (33%).

Insert Table 10: Inequality dynamics: Professions ... (ictab-10.doc)

The picture again is different when extended income dynamics are regarded: relative inequality is unchanged for employees. Entrepreneurs' and professions' incomes are more disparate ten years after (49 resp. 54%).

To conclude these further socioeconomic findings: As it might be expected, there is a lot of variance according to socioeconomic groupings. Time use souvereignity with regard to the paid market job in particular does matter not only in market income inequality but differently according to extended income. There are distinct differences between professions, entrepreneurs and employees with respect to their inequality profiles and extended income influences.

10   Concluding remarks

Our investigation of welfare dynamics of market and non-market (unpaid) income was based on the consideration of household sociodemographics and a set of different replacement cost and self-evaluation measures when valued unpaid work in housework, child caring and DIY. Though some further opportunity results still have to be computed some general conclusions are possible:

Valueing household production: Different replacement evaluation methods show similar cross sectional as well longitudinal inequality and poverty incidences.

Equivalence scales: The two extreme equivalence scales (German Official Social Assistance (GOSA) scale and the full market basket complete demand equation extended linear expenditure ELES scale, which include a broad range of further expert, subjective and microeconometric scales, show remarkable effects:

Cross sectional: ELES compared to GOSA: paid (household) income inequality and poverty diminish the 80s and 90s figures; extended income inequality and poverty raises the 80s and 90s figures remarkably.

Longitudinal: ELES compared to GOSA: welfare mobility of paid (household) income: to be poor is measured more lasting from the 80s to the 90s; extended income: to be poor and to be rich is measured more short termed from the 80s to the 90s.

Equivalence scales are sensitive in particular in the lower and upper tails of the distributions, regardless of pure market or extended income concepts.

Market income vs. extended income: extended income as an enhanced concept of economic ressources of households show remarkable impacts on relative inequality and poverty when compared to more traditionally regarded household income figures:

Cross sectional: when compared to paid (household) income extended income inequality and poverty is reduced within the mid 80s as well as within the mid 90s.

Longitudinal: there is a remarkable welfare mobility tendency to mean relative welfare positions within the individual development over ten years. Thus, household production in particular is able to circumvent (relative) poverty and is equalizing with a tendency to the middle of the extended income distribution.

Summarizing the effects: even if not all parts of our considered unpaid work (housework, child caring and Do-it-yourself) is entirely work in the sense of a replacable market work (via the third-person criteria), the magnitude of the effects and our results will be still striking.

To give some answer to the stated question on the beginning: the rapidly changing market conditions at the end of our century could be balanced only by further unpaid household ressources with respect to a more equal income distribution. In other words, it is only due to unpaid work at home which circumvence income rigidities not any further available at the market.

The social and economic policy implication, as to our opinion, is not to believe on the household ressource power, but is to stand on the market side and – because of the market power belief - support additional paid work income possibilities if the goal is reducing inequality and poverty for our society.

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Appendix

Table 7a: Economic well-being in inequality and poverty of market and non-market work 1985 – All

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale:					
Official German social Assistance					
Mean	1318,0	2032,8	2168,3	2550,0	1999,1
Median	1215,5	1976,6	2114,8	2468,9	1936,1
Inequality					
Gini	0,2461	0,1742	0,1740	0,1907	0,1756
Theil (I=1)	0,1016	0,0507	0,0503	0,0592	0,0515
Atkinson 0,5	0,0499	0,0254	0,0253	0,0300	0,0258
Coefficient of Variation	0,476	0,324	0,321	0,347	0,327
90/10 Ratio	5,0	3,2	3,2	3,6	3,2
Quintiles					
0 - ≤20 %	9,6	12,0	12,0	11,3	12,0
20 - ≤40 %	14,4	16,4	16,4	16,1	16,4
40 - ≤60 %	18,4	19,5	19,5	19,4	19,4
60 - ≤80 %	23,1	22,7	22,8	23,0	22,7
80 - ≤100 %	34,3	29,4	29,3	30,3	29,5
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	3,9	1,2	1,3	2,1	1,3
at 50 % of mean income	10,1	3,5	3,8	5,3	3,3
at 60 % of mean income	17,5	8,0	8,1	10,7	8,4
Elasticity of Scale	0,8196	0,8196	0,8196	0,8196	0,8196
Equivalence scale:					
Consumption based ELES					
Mean	1762,9	2751,5	2946,4	3454,1	2712,2
Median	1648,0	2697,6	2896,7	3340,3	2642,4
Inequality					
Gini	0,2344	0,1792	0,1853	0,1967	0,1853
Theil (I=1)	0,0900	0,0523	0,0556	0,0619	0,0555
Atkinson 0,5	0,0451	0,0267	0,0284	0,0317	0,0282
Coefficient of Variation	0,436	0,323	0,331	0,350	0,333
90/10 Ratio	4,8	3,3	3,4	3,7	3,4
Quintiles					
0 - ≤20 %	9,8	11,6	11,2	10,9	11,4
20 - ≤40 %	14,8	16,3	16,2	15,9	16,1
40 - ≤60 %	18,7	19,6	19,6	19,4	19,4
60 - ≤80 %	23,4	23,0	23,3	23,4	23,1
80 - ≤100 %	33,2	29,4	29,6	30,4	29,8
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,5	1,9	2,1	2,9	1,9
at 50 % of mean income	8,9	4,4	4,9	5,7	4,4
at 60 % of mean income	17,0	9,6	10,8	11,7	9,9
Elasticity of Scale	0,4692	0,4692	0,4692	0,4692	0,4692

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes;SE: Self evaluation.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data;
              n_{1985} = 9.518, N_{1985} = 43.473.684, own computations

Table 7b: Economic well-being in inequality and poverty of market and non-
              market work 1985 – Men

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale:					
Official German social Assistance					
Mean	1341,2	2039,2	2181,3	2562,4	2001,2
Median	1229,5	1991,1	2136,0	2482,6	1942,4
Inequality					
Gini	0,2489	0,1780	0,1766	0,1951	0,1796
Theil (I=1)	0,1063	0,0542	0,0530	0,0625	0,0552
Atkinson 0,5	0,0515	0,0270	0,0266	0,0316	0,0275
Coefficient of Variation	0,494	0,337	0,331	0,358	0,341
90/10 Ratio	5,0	3,3	3,3	3,8	3,3
Quintiles					
0 - ≤20 %	9,7	11,8	11,8	11,1	11,7
20 - ≤40 %	14,2	16,3	16,3	16,0	16,3
40 - ≤60 %	18,2	19,5	19,6	19,3	19,4
60 - ≤80 %	23,2	22,7	22,8	22,9	22,7
80 - ≤100 %	34,6	29,6	29,4	30,6	29,7
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	3,9	1,5	1,5	2,5	1,5
at 50 % of mean income	10,2	4,0	4,2	6,0	3,5
at 60 % of mean income	18,4	8,8	8,8	11,3	9,3
Elasticity of Scale	0,8192	0,8192	0,8192	0,8192	0,8192
Equivalence scale:					
Consumption based ELES					
Mean	1820,8	2809,2	3015,6	3532,6	2763,2
Median	1700,0	2752,3	2955,8	3427,7	2686,7
Inequality					
Gini	0,2255	0,1722	0,1768	0,1913	0,1784
Theil (I=1)	0,0848	0,0493	0,0515	0,0590	0,0525
Atkinson 0,5	0,0422	0,0251	0,0263	0,0302	0,0266
Coefficient of Variation	0,425	0,314	0,319	0,342	0,324
90/10 Ratio	4,5	3,2	3,3	3,6	3,3
Quintiles					
0 - ≤20 %	10,1	11,8	11,6	11,1	11,6
20 - ≤40 %	15,0	16,6	16,5	16,0	16,4
40 - ≤60 %	18,8	19,6	19,7	19,5	19,5
60 - ≤80 %	23,2	22,9	23,1	23,4	23,0
80 - ≤100 %	32,8	29,0	29,2	30,0	29,4
Poverty Rate of Persons (in percentage)					
At 40 % of mean income	3,3	1,6	1,7	2,8	1,8
At 50 % of mean income	7,6	4,3	4,7	5,6	4,5
At 60 % of mean income	15,8	9,2	9,7	11,1	9,6
Elasticity of Scale	0,4683	0,4683	0,4683	0,4683	0,4683

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes; SE: Self evaluation.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data;
              $n_{1985} = 9.518$, $N_{1985} = 43.473.684$, own computations.

Table 7c: Economic well-being in inequality and poverty of market and non-market work 1985 – Women

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale: Official German social Assistance					
Mean	1297,2	2027,1	2156,7	2538,9	1997,2
Median	1212,9	1965,7	2098,4	2457,7	1930,4
Inequality					
Gini	0,2395	0,1682	0,1693	0,1846	0,1694
Theil (I=1)	0,0970	0,0476	0,0479	0,0562	0,0482
Atkinson 0,5	0,0482	0,0239	0,0242	0,0285	0,0242
Coefficient of Variation	0,458	0,312	0,312	0,337	0,315
90/10 Ratio	5,0	3,1	3,1	3,4	3,1
Quintiles					
0 - ≤20 %	9,6	12,2	12,1	11,5	12,2
20 - ≤40 %	14,7	16,5	16,5	16,1	16,5
40 - ≤60 %	18,6	19,4	19,6	19,4	19,4
60 - ≤80 %	23,1	22,7	22,7	23,0	22,6
80 - ≤100 %	33,8	29,1	29,1	29,9	29,2
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,2	0,9	1,1	1,9	1,1
at 50 % of mean income	9,2	3,1	3,4	4,6	3,0
at 60 % of mean income	17,3	7,3	7,4	10,1	7,5
Elasticity of Scale	0,8200	0,8200	0,8200	0,8200	0,8200
Equivalence scale: Consumption based ELES					
Mean	1711,2	2699,8	2884,5	3383,8	2666,5
Median	1587,3	2652,1	2822,7	3263,0	2582,1
Inequality					
Gini	0,2388	0,1831	0,1917	0,2002	0,1904
Theil (I=1)	0,0940	0,0548	0,0589	0,0643	0,0581
Atkinson 0,5	0,0474	0,0279	0,0301	0,0328	0,0295
Coefficient of Variation	0,444	0,330	0,341	0,357	0,341
90/10 Ratio	5,0	3,4	3,5	3,8	3,5
Quintiles					
0 - ≤20 %	9,5	11,4	11,1	10,8	11,3
20 - ≤40 %	14,7	16,1	15,9	15,7	15,9
40 - ≤60 %	18,6	19,6	19,6	19,4	19,4
60 - ≤80 %	23,5	23,1	23,4	23,5	23,2
80 - ≤100 %	33,6	29,7	30,0	30,6	30,2
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	5,0	2,1	2,2	3,1	2,0
at 50 % of mean income	9,6	4,3	5,1	5,9	4,5
at 60 % of mean income	17,9	9,9	11,3	12,2	10,3
Elasticity of Scale	0,4700	0,4700	0,4700	0,4700	0,4700

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes;SE: Self evaluation.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data;
    n_{1985} = 9.518, N_{1985} = 43.473.684, own computations.

Table 7d: Economic well-being in inequality and poverty of market and non-market work 1994 – All

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale: Official German social Assistance					
Mean	1841,2	3095,0	3218,8		3026,6
Median	1657,5	3000,4	3123,9		2934,4
Inequality					
Gini	0,2562	0,1716	0,1717		0,1718
Theil (I=1)	0,1081	0,0488	0,0487		0,0490
Atkinson 0,5	0,0529	0,0246	0,0246		0,0246
Coefficient of Variation	0,448	0,315	0,323		0,324
90/10 Ratio	5,3	3,2	3,2		3,2
Quintiles					
0 - ≤20 %	9,5	12,1	12,1		12,2
20 - ≤40 %	14,2	16,6	16,6		16,5
40 - ≤60 %	18,1	19,4	19,4		19,4
60 - ≤80 %	23,0	22,5	22,6		22,4
80 - ≤100 %	35,2	29,4	29,3		29,4
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,3	1,3	1,4		1,3
at 50 % of mean income	9,3	3,7	3,9		3,5
at 60 % of mean income	18,2	7,5	7,9		7,4
Elasticity of Scale	0,8221	0,8221	0,8221		0,8221
Equivalence scale: Consumption based ELES					
Mean	2399,1	4085,6	4261,6		4003,8
Median	2200,0	4024,3	4185,6		3889,9
Inequality					
Gini	0,2433	0,1758	0,1808		0,1805
Theil (I=1)	0,0953	0,0504	0,0531		0,0529
Atkinson 0,5	0,0477	0,0258	0,0272		0,0269
Coefficient of Variation	0,489	0,316	0,314		0,317
90/10 Ratio	5,0	3,3	3,4		3,4
Quintiles					
0 - ≤20 %	9,7	11,7	11,4		11,6
20 - ≤40 %	14,7	16,5	16,3		16,3
40 - ≤60 %	18,3	19,7	19,7		19,4
60 - ≤80 %	23,2	23,0	23,1		22,9
80 - ≤100 %	34,1	29,2	29,4		29,7
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,2	2,0	2,1		1,9
at 50 % of mean income	9,0	4,7	5,1		4,7
at 60 % of mean income	16,2	9,1	9,9		9,2
Elasticity of Scale	0,4820	0,4820	0,4820		0,4820

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes; SE: Self evaluation.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data;
n_{1994} = 11.842, N_{1994} = 59.244.511, own computations.

Table 7e: Economic well-being in inequality and poverty of market and non-market work 1994 – Men

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale: Official German social Assistance					
Mean	1893,3	3100,4	3227,1		3021,9
Median	1657,5	3011,7	3144,9		2933,6
Inequality					
Gini	0,2588	0,1732	0,1723		0,1744
Theil (I=1)	0,1096	0,0489	0,0482		0,0497
Atkinson 0,5	0,0535	0,0246	0,0243		0,0249
Coefficient of Variation	0,430	0,303	0,310		0,314
90/10 Ratio	5,3	3,2	3,1		3,2
Quintiles					
0 - ≤20 %	9,5	12,1	12,1		12,1
20 - ≤40 %	14,0	16,5	16,5		16,5
40 - ≤60 %	17,9	19,4	19,5		19,4
60 - ≤80 %	23,1	22,5	22,6		22,5
80 - ≤100 %	35,4	29,4	29,3		29,6
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	3,8	1,1	1,1		1,2
at 50 % of mean income	9,5	3,6	3,6		3,5
at 60 % of mean income	18,8	8,0	8,2		7,9
Elasticity of Scale	0,8212	0,8212	0,8212		0,8212
Equivalence scale: Consumption based ELES					
Mean	2499,8	4162,8	4345,2		4066,6
Median	2312,1	4091,5	4282,0		3946,6
Inequality					
Gini	0,2332	0,1695	0,1737		0,1754
Theil (I=1)	0,0883	0,0463	0,0484		0,0493
Atkinson 0,5	0,0441	0,0236	0,0247		0,0250
Coefficient of Variation	0,493	0,316	0,313		0,320
90/10 Ratio	4,7	3,1	3,2		3,2
Quintiles					
0 - ≤20 %	10,0	12,0	11,8		11,9
20 - ≤40 %	14,8	16,6	16,5		16,4
40 - ≤60 %	18,5	19,7	19,7		19,5
60 - ≤80 %	23,0	22,8	22,9		23,0
80 - ≤100 %	33,6	28,9	29,1		29,2
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	3,2	1,4	1,7		1,3
at 50 % of mean income	8,5	4,2	4,2		4,0
at 60 % of mean income	15,2	8,7	9,2		8,7
Elasticity of Scale	0,4788	0,4788	0,4788		0,4788

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes; SE: Self evaluation.

Source: German Socio-Economic Panel (GSOEP), weighted cross-sectional data; n_{1994} = 11.842, N_{1994} = 59.244.511, own computations.

Table 7f: Economic well-being in inequality and poverty of market and non-market wo

Economic Well-Being Measure	Market income	Market and non-market income			
		GL	SP	NOC	SE
Equivalence scale: Official German social Assistance					
Mean	1793,6	3090,0	3211,2		3030,9
Median	1639,3	2986,1	3111,9		2934,8
Inequality					
Gini	0,2511	0,1700	0,1709		0,1692
Theil (I=1)	0,1059	0,0488	0,0491		0,0484
Atkinson 0,5	0,0521	0,0246	0,0249		0,0244
Coefficient of Variation	0,461	0,326	0,335		0,333
90/10 Ratio	5,4	3,2	3,2		3,2
Quintiles					
0 - ≤20 %	9,5	12,2	12,1		12,2
20 - ≤40 %	14,4	16,6	16,6		16,6
40 - ≤60 %	18,3	19,3	19,4		19,3
60 - ≤80 %	22,9	22,4	22,5		22,4
80 - ≤100 %	34,8	29,4	29,3		29,3
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,8	1,6	1,7		1,5
at 50 % of mean income	9,4	3,8	4,1		3,5
at 60 % of mean income	17,7	7,1	7,4		7,1
Elasticity of Scale	0,8231	0,8231	0,8231		0,8231
Equivalence scale: Consumption based ELES					
Mean	2307,0	4014,9	4185,2		3946,4
Median	2094,6	3934,3	4104,7		3835,7
Inequality					
Gini	0,2481	0,1810	0,1867		0,1848
Theil (I=1)	0,1007	0,0540	0,0572		0,0560
Atkinson 0,5	0,0503	0,0278	0,0295		0,0287
Coefficient of Variation	0,483	0,315	0,315		0,315
90/10 Ratio	5,2	3,5	3,6		3,5
Quintiles					
0 - ≤20 %	9,5	11,4	11,1		11,4
20 - ≤40 %	14,5	16,4	16,2		16,2
40 - ≤60 %	18,3	19,6	19,6		19,4
60 - ≤80 %	23,2	23,1	23,3		23,0
80 - ≤100 %	34,5	29,5	29,8		29,9
Poverty Rate of Persons (in percentage)					
at 40 % of mean income	4,5	2,4	2,7		2,4
at 50 % of mean income	9,4	5,2	5,8		5,1
at 60 % of mean income	17,5	9,5	10,3		9,7
Elasticity of Scale	0,4856	0,4856	0,4856		0,4856

GL: Market replacement costs with a global substitute; NOC: Net opportunity costs;
SP: Market replacement costs with specialized substitutes;SE: Self evaluation.

Source:German Socio-Economic Panel (GSOEP), weighted cross-sectional data;

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